Bloodborne Pathogen Training

Please Note

- This training module was developed specifically for personnel who work at the Naval Health Research Center in San Diego, CA.
- Tests that are submitted from other facilities will not be graded. Please refer to your local BBP Exposure Control Plan policies for training information.

Directions

The NHRC Department of Respiratory Disease Research requires that all personnel, both onsite and offsite, who work with patient specimens or have patient contact, receive bloodborne pathogen training. Bloodborne pathogen training is a critical component of laboratory safety and must be completed upon orientation and followed by subsequent annual refresher courses. The following training is in compliance with the OSHA Bloodborne Pathogens Standard (29 CFR 1910.1030) and will be used as our annual refresher course. A copy of the Offsite NHRC Department of Respiratory Disease Research Exposure Plan may be obtained by contacting Safety and Logistics at 619-553-9105. Upon completion of this training, you will be required to take a quiz. Further directions will be given at the end of the training.

Introduction

- Needle sticks and other sharps injuries are a major healthcare industry concern. In 1991, OSHA created Bloodborne Pathogen Standard 29 CFR 1910.1030 which combined engineering and work practice controls, training, and other factors to minimize transmission of bloodborne pathogens in the workplace.
- In November of 2000, the Needlestick Safety and Prevention Act was passed by Congress.
- It is estimated that up to 800,000 needle stick infections occur yearly.

Bloodborne Diseases

- Bloodborne pathogens are pathogenic microorganisms (e.g. viruses, bacteria, or parasites) that may be present in human blood and can cause disease in humans.

- There are several bloodborne diseases that you could be exposed to on the job. The most significant are:
  - Human Immunodeficiency Virus (HIV)
  - Hepatitis B Virus (HBV)
  - Hepatitis C Virus (HCV)

Human Immunodeficiency Virus (HIV)

- HIV attacks the body's immune system and may cause Acquired Immune Deficiency Syndrome (AIDS).
- Currently, there is no vaccine or cure for HIV.
- Needle sticks are a rare cause of occupational HIV transmission (.04% of people are infected in the workplace). It is still important to be careful when working with needles because HIV can lead to AIDS which is fatal.

Human Immunodeficiency Virus (HIV) Continued

A person with HIV may:

- Carry the virus without developing symptoms for many years.
- Develop AIDS, or AIDS-related symptoms including: neurological problems, cancer, and other opportunistic infections.
- Suffer from flu-like symptoms, fever, diarrhea, and fatigue as well as weakness, sore-throat, white coating on the tongue, weight loss, and swollen lymph glands.

Hepatitis B (HBV)

- Hepatitis means "inflammation of the liver."
- HBV is a major bloodborne hazard that infects approximately 8,700 healthcare workers a year, resulting in more than 200 deaths.
- There **is** a vaccine available to prevent HBV.
- Blood to blood transmission is the most common form of HBV infection.

Hepatitis B (HBV) Continued

If someone becomes infected with HBV he/she:

- May not develop symptoms for up to 9 months.
- May suffer from symptoms such as fatigue, stomach pain, jaundice, and darkened urine.
- HBV may severely damage the liver, causing cirrhosis and sometimes death.

Hepatitis C (HCV)

- HCV is the most common bloodborne infection in the US, infecting more than 4 million Americans, most of which are unaware that they are infected. As many as 2.7 - 10% of new HCV cases are occupationally acquired.
- HCV is a potentially fatal bloodborne virus that can lead to liver failure or cancer.
- There is no vaccine against HCV.
- Symptoms include: Jaundice, fatigue, darkened urine, abdominal pain, and loss of appetite or nausea, although many people remain asymptomatic.

Fluids that may Cause Transmission

HIV, HBV, and HCV are transmitted through blood or other bodily fluid. This includes:

- Semen
- Vaginal secretions
- Saliva
- Cerebrospinal fluid
- Amniotic fluid
- Peritoneal fluid
- Pleural fluid
- Synovial fluid
- Any fluid that is contaminated with blood

Vehicles of Transmission

Bloodborne pathogens may enter the body and infect a person through a variety of means including:

- Hypodermic Needles
- Sexual Contact
- Accidental puncture with contaminated needles, broken glass or any other sharp object that can pierce skin.
- Contact between broken or damaged skin and infected bodily fluids.
- Indirect transmission such as touching a contaminated object to your mouth, eyes, nose, or other mucous membranes.

Universal Precautions

- HIV, HBV, and HCV infect people of all ages, socioeconomic classes, race, and background. This means you cannot identify every patient who may transmit the infection.

- Universal precautions resolve this uncertainty by requiring you to treat all human blood and bodily fluids as if they were known to be infected.

Respiratory Pathogens

- It is possible that you may be exposed to respiratory pathogens, such as *M. tuberculosis* (TB) and *B. pertussis*, at this workplace.
- Although we do not culture TB, we do process throat cultures which could be infected.
- Once a year, every employee must get a PPD skin test to check for the presence of TB.
- The greatest potential for *B. pertussis* and other respiratory pathogen infection is through aerosol generation during the manipulation of cultures.

Respiratory Pathogens: Reducing the Risk

Workers may be protected from Respiratory Pathogens by:

- Using careful work practices
- Having good personal hygiene (gowns, gloves, hand washing)
- Using engineering controls (hoods)
- Receipt of an annual influenza vaccination

Reducing Your Risk

There are five major tactics to help reduce your risk of exposure and infection:

1. Work Practices & Personal Hygiene
2. Personal Protective Equipment
3. Engineering Controls
4. Good Housekeeping
5. Hepatitis B Vaccine

Work Practices

- If you come in contact with infectious materials, wash the exposed area immediately in order to lessen the chance of becoming infected.

- In laboratory and patient care areas you should wash your hands frequently, including when you:
  - Remove your gloves
  - Come in contact with blood or other bodily fluids
  - Change workstations
  - Enter a "clean" area

To Avoid Needle Sticks

- Use a needle with Engineered Sharps Injury Protection (SESIP) attached to the blood tube holder and dispose of the entire unit into a sharps container.

- Do not bend, break, and *NEVER* re-cap needles.
- Do not remove contaminated needles from blood tube following a blood draw.
- Place contaminated sharps in an appropriate puncture-resistant container.

Code Regulations

Code 1910.1030 requires you to:

- Keep a confidential sharps injury log.
- Use the most up to date safety needles which are appropriate for your workplace.
- Involve employees in choosing the needle safety devices.
- Have a yearly re-examination of your exposure control plan.

Sharps Disposal Containers

Sharps disposal containers should be:

- *Functional* - durable, closeable, leak and puncture resistant
- *Accessible* - close to where work is being done
- *Visible* - properly labeled and color coded
- *Accommodating* - conveniently located and easy to reach with an opening large enough for both the needle and SESIP

Handling Sharps

- Do not overfill the sharps containers. Fill only to the indicated line or ¾ of the container, whichever comes first.
- Never reach into any container that is used for sharps.
- Place leaking or punctured sharps containers inside a secondary container to prevent further leakage.
- Always use a utensil (tongs, dustpan, etc.) to pick up contaminated broken glass, needles, or other sharps.
- Assume all used needles and other sharps are contaminated.

Personal Hygiene

Other precautions to protect yourself include:

- Always minimize splashing, spraying, and spattering.
- Do not eat, drink, smoke, apply cosmetics, or handle contact lenses where you may potentially be exposed to infectious materials.

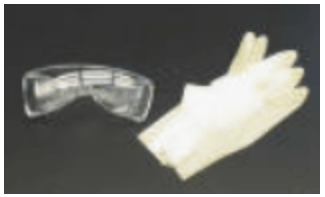
- Never pipette or use suction by mouth!
- Don't store food or drinks where blood and other infectious materials may be present.

- Avoid petroleum-based lubricants because they can eat away at latex gloves. Hand cream is okay, but only after you have thoroughly washed your hands.

Personal Protective Equipment

Personal Protective Equipment (PPE) protects you from contact with potentially infectious materials. PPE includes:

- *Masks/Eye Protection*: always use when you perform procedures likely to generate splashes of blood or other bodily fluids.
- *Gowns/Coats*: use for procedures likely to generate splashes of blood or other bodily fluids.
- *Gloves*: always use before touching or if likely to come in contact with blood, bodily fluids, non-intact skin, mucous membranes, and when performing venipuncture.



Personal Protective Equipment Continued

- PPE should be worn at all times in the laboratory except in approved "clean areas".
- PPE should never be worn outside of the area of potential exposure.
- Contaminated PPE must be taken care of appropriately by either disposing, decontaminating, or laundering it.

Gloves

- Gloves are a very important way of protecting yourself.
- Always use latex or approved non-latex gloves.
- Always check the gloves for holes before putting them on.
- There are also specific rules to be followed for glove removal:
  - With both hands gloved, peel one glove off from wrist to fingers and hold it in the gloved hand.
  - With the exposed hand, peel the second glove from the inside, tucking the first glove inside the second.
  - Immediately dispose of both gloves in a biohazardous materials container.
  - Wash your hands thoroughly.

Engineering Controls

Engineering Controls are the primary means of minimizing or eliminating employee exposure to BBP and include the use of safer medical devices. Some examples are:

- Self-sheathing needles
- Sharps disposal containers
- Biohazardous waste bags
- Biological Safety Hoods
- Autoclaves

Good Housekeeping

Good Housekeeping means using your common sense and knowledge to keep your work areas clean and to protect yourself and your colleagues. General rules are:

- Clean and decontaminate all equipment and surfaces at the end of each shift using an appropriate decontaminant.
- Replace protective coverings on equipment
- Place contaminated sharps into the proper leak-proof containers.
- Please read and follow all biohazard labels.
- Always dispose of hazardous materials (including sharps) in the proper RED (NOT orange) container or bag.

HBV Vaccination

- If your occupation has the potential for HBV exposure, your employer will offer the vaccine at no cost to you.
- The vaccine is administered in three injections: one at employment orientation, one at three month, the final at six months. A post vaccination serology test (titer) should be scheduled to check antibody levels.
- All three injections must be received for the vaccine to be effective.
- Today's vaccines are safe and are 85-97% effective.

Exposure Incident Procedures

- An exposure incident is a spill, splash, needle stick, ingestion, or accident, in which you have direct and unprotected contact with human blood, fluids, or tissue.

- In the event of an exposure incident an employee should:
  - Wash or flush the area immediately.
  - Notify the employee's supervisor.
  - Seek further medical treatment as necessary.
  - Ensure the incident is reported to your employer.

- REMEMBER: Report an exposure incident as soon as possible.

Specific Exposure Procedures

- *Contaminated skin*: scrub and soak the area for at least 10 minutes using a providone iodine solution (e.g. Betadine) and water.

- *Percutaneous injury (needle stick, cut, wound, etc.)*: Vigorously scrub and soak the area for at least 20 minutes with a Betadine solution and water before seeking additional treatment.

- *Mucous Membrane*: Flush any exposed area for at least 15 minutes at an emergency eyewash station before seeking additional treatment.

Emergency Procedures

- In case of an emergency, all sites have access to emergency numbers, locations, and procedures for both military and civilian personnel.
- All treatments of work-related injuries will be paid for by your employer.
- Do **not** use your personal insurance card.

Quiz

- Now that you have completed the Bloodborne Pathogen Training, you will need to take a quiz based on the information in this PowerPoint.

- Please return to the GEIS website
  http://www.med.navy.mil/sites/nhrc/geis/Pages/Training.aspx
  and click the “Take Quiz” button to view and print the quiz.

- Please complete the quiz and fax your answers to Safety and Logistics at 619-553-7601.

- If you have any questions or need further assistance, please call 619-553-9105.

Thank you and Congratulations!

- You have completed the bloodborne pathogen training.
- Your score will be determined and you will be notified of your status.
- References

  - Coastal Health Train. Bloodborne pathogens: reducing your risk. Coastal Video Communications Corporation. 1994.
  - Coastal Healthcare. Bloodborne pathogens. Coastal Video Communications Corporation. 1993.
  - "CDC data and statistics." Center for Disease Control and Prevention. Online <http://www.cdc.gov> April 30, 2001.
  - "Bloodborne pathogens." Oklahoma State University. Online <http://www.pp.okstate.edu> April 30, 2001.